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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,796	06/19/2001	Kenneth LeVey	ITWO:0004 (12984)	4481

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EXAMINER

SCHIFFMAN, JORI

ART UNIT	PAPER NUMBER
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3679

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,796

Applicant(s)

LEVEY ET AL.

Examiner

Jori R. Schiffman

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-16, 18, 19, 21, 23-28, 30-35, 37-40, 52-58 and 63-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-16, 18, 19, 21, 23-28, 30-35, 37-40, 52-58 and 63-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 3679

DETAILED ACTION

1. Upon further consideration of the references, the examiner has rejected claims 3, 4, 11-14, 19, 21, 23, 26-28, 30, 33-35, 37, and 56-58 which were previously indicated as allowable.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the respective profiles of at least two bosses and at least two bases must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 52-55, 63, and 64 are rejected under 35 U.S.C. 102(b) as being anticipated by Yaotani et al. (4637767).

Art Unit: 3679

Regarding claim 1, Figure 8 of Yaotani discloses a threaded fastener with a head 120, a tip 131, and a threaded shank 130 extending between the head and the tip, the shank having a helical lead including a plurality of bosses 150 separated by recessed bases 140, each boss extending radially beyond adjacent bases and presenting a respective profile including a lead-in profile in a direction toward the tip, a respective lead-out profile in a direction toward the head, and a central section of substantially uniform radial dimension, and the respective profiles comprising a crest profile defining a single apex.

Regarding claims 52-55, Yaotani discloses the claimed threaded fastener as above. The value of the ratios of removal torque to insertion torque is intended use and would be dependent upon the material that the screw is used with.

Referring to claims 63 and 64, Yaotani discloses the claimed fastener as above, and further discloses each base including a central section of substantially uniform radial dimension.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaotani et al. (4637767) as applied to claim 1 above, and further in view of Goss et al. (US 5961267).

As to the claims, Yaotani discloses the claimed fastener except for the profiles of at least two bosses differing from one another, and at least two bases differing from one another in length, and respective lead-in and lead-out profiles of at least two bosses differ from one another. Goss teaches a fastener wherein the respective profiles of at least two bosses 46, 48 and at least two bases differ from one another in length (Figs. 6, 7), as well as the lead-in and lead-out profiles of at least two bosses differing from one another. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to form the profiles of at least two bosses and at least two bases differing from one another in length, as well as the lead-in and lead-out profiles of at least two bosses differing from one another in the Yaotani fastener as disclosed in Goss to increase holding strength and resist pullout for a more secure connection.

7. Claims 8, 56, 57, 58, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaotani et al. (4637767) as applied to claims 1 and 52 above, and further in view of Hiroyuki (US 5110245).

Regarding the claims 8, 56, 57, and 65, Yaotani discloses the claimed fastener except for the lead-in profile differing from the lead-out profile of the same boss.

Hiroyuki teaches a fastener with a thread including bosses 4b and bases 6, where lead-in profiles 6b and lead-out profiles 6a differ on the same boss 6. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to form the lead-in profile different from the lead-out profile of the same boss as disclosed in Hiroyuki to increase holding strength and resist pullout for a more secure connection.

As to claim 58, modified Yaotani discloses the crests of lead-in profiles (6b of Hiroyuki) being inclined at approximately 15 degrees from the thread root and crests of lead-out profiles (6a of Hiroyuki) being inclined approximately 45 degrees from the thread root. Although the angles are not specifically disclosed in the references, a skilled artisan would have recognized to experiment with a broad range of angles depending on the particular application of the invention.

8. Claims 25, 26, 32, 33, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaotani et al. (4637767) in view of Thom (US 23409).

Regarding claims 25, and 32, Yaotani discloses the claimed fastener as above, except for a second helical lead including a plurality of second bosses and bases. Thom teaches a screw with double lead threads which allow it to be installed with one-half the number of turns. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to add a second, identical thread to Yaotani's screw as disclosed in Thom to allow it to be installed with one-half the number of turns, which would require less torque and force, and would therefore make the screw easier to install. As to claims 25 and 32, since some bosses of Yaotani are displaced from one another by 180° at generally corresponding locations along the shank, the respective first and second bosses would also be displaced from one another by 180° at generally corresponding locations along the shank and the first and second leads would be capable of providing a substantially constant insertion torque.

As to claims 26 and 33, modified Yaotani discloses each of the first and second bosses including a respective lead-in and lead-out profile and wherein the lead-in profiles

Art Unit: 3679

of the first bosses and lead out profiles of the second bosses are disposed at generally corresponding locations along the shank, and the lead-out profiles of the first bosses and lead-in profiles of the second bosses are disposed at generally corresponding locations on along the shank.

Referring to claims 39 and 40, modified Yaotani discloses each of the first and second bosses extending less than 90 degrees around the shank.

9. Claims 9, 11, 12, 15, 16, 18, 19, 21, 24, 27, 28, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaotani et al. (4637767) in view of Thom (US 23409) and Goss et al. (US 5961267)

Regarding claims 9, 11, 12, 18, 21, 27, 28, 34, and 35, Yaotani discloses the claimed fastener as above except for except for a second helical lead including a plurality of second bosses and bases. Thom teaches a screw with double lead threads which allow it to be installed with one-half the number of turns. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to add a second, identical thread to Yaotani's screw as disclosed in Thom to allow it to be installed with one-half the number of turns, which would require less torque and force, and would therefore make the screw easier to install. Modified Yaotani fails to disclose profiles of at least two bosses of the first lead differing from one another and profiles of at least two bosses of the second lead differing from one another, as well as the lead-in and lead-out profiles of at least two bosses differing from one another. Goss teaches a fastener wherein the respective profiles of at least two bosses 46, 48 differ from one another (Figs. 6, 7), as well as the lead-in and lead-out profiles of at least two bosses differing from one

Art Unit: 3679

another. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to form the profiles of at least two bosses differing from one another, as well as the lead-in and lead-out profiles of at least two bosses differing from one another in the Yaotani fastener as disclosed in Goss to increase holding strength and resist pullout for a more secure connection. Once the combination is made, at least two bosses of each of the thread leads would differ from one another.

As to claims 15 and 16, modified Yaotani discloses some of the bosses and bases disposed at corresponding locations along the shank, therefore when a second lead form is added some of the first bosses and second bases, as well as second bosses and first bases would be disposed at corresponding locations along the shank.

Referring to claim 19, modified Yaotani discloses each of the first and second bosses including a respective lead-in and lead-out profile and wherein the lead-in profiles of the first bosses and lead out profiles of the second bosses are disposed at generally corresponding locations along the shank, and the lead-out profiles of the first bosses and lead-in profiles of the second bosses are disposed at generally corresponding locations on along the shank.

In regards to claim 24, once the combination is made the first lead would be identical to the second lead.

10. Claims 23, 30, 31, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaotani et al. (4637767) in view of Thom (US 23409) as applied to claims 25 and 32 above, and further in view of Hiroyuki (US 5110245).

Art Unit: 3679

As to claims 23, 30, and 37, modified Yaotani discloses the claimed fastener except for the lead-in profiles of the bosses of the first and second leads being inclined less than the lead out profiles for the same bosses. Hiroyuki teaches a fastener with the lead-in profiles 6b of the bosses of the first and second leads being inclined less than the lead-out profiles 6a for the same bosses. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to form the profiles of the bosses varying along the shank as disclosed in Hiroyuki to increase holding strength and resist pullout for a more secure connection.

As to claims 31 and 38, modified Yaotani discloses the claimed fastener except for the profiles of the bosses of the first and second leads varying along the shank from the tip to head. Hiroyuki teaches a fastener with a thread including bosses 4b and bases 6, respective profiles of the bosses varying along the shank. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to form the profiles of the bosses varying along the shank as disclosed in Hiroyuki to increase holding strength and resist pullout for a more secure connection.

Response to Arguments

11. Applicant argues that Yaotani fails to disclose "a central section of substantially uniform radially dimension" since it is in the form of a circular arc. In response, the Examiner disagrees because the claim does not specify the length for the central section of substantially uniform radially dimension. Yaotani discloses the bosses having a section, any point on the boss, as

Art Unit: 3679

being a central section of substantially uniform radially dimension. Therefore the rejection is deemed proper and is maintained.

Conclusion

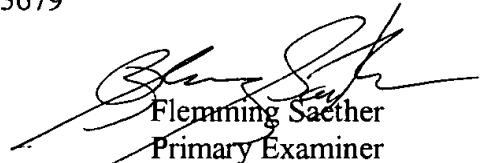
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jori R. Schiffman whose telephone number is 703-305-4805. The examiner can normally be reached on M-Th, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on 703-308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jori R. Schiffman
Examiner
Art Unit 3679

JS


Flemming Saether
Primary Examiner